

### V-Soft Communications Population Report

WPGX-D.P.A (09) Panama City, FL  
TV Incoming Interference Study  
Signal Resolution: 2 km  
Consider NTSC Taboo: Yes  
KWX error points are considered to be interference free coverage.  
# of radials computed for contours: 72  
Contours calculated using 8 radial HAAT.  
LR Profile Spacing Increment: 1.0 km  
Interference considered within the reference station's noise limited contour.  
Using NTSC lptv/translators D/U rules.  
Threshold for reception: 36.0

Study Date: 1/25/2001

Percentages calculated using a baseline population of 412,011.

Stations which cause interference:

Call Letters	H Units	Population	%	Area (sq. km)
WALA-D.A (09)	37147	73543	17.850	3447.34
WACX-L (09Z)	1536	3523	0.855	269.24
WTVM (09+)	4652	11887	2.885	1097.69
WXGA-D.C (9)	726	1925	0.467	255.52

Masking Summary:

Call Letters	Total Interference Population	%	Unique Interference Population	%
WALA-D.A (09)	73543	17.850	66798	16.213
WACX-L (09Z)	3523	0.855	2227	0.541
WTVM (09+)	11887	2.885	4198	1.019
WXGA-D.C (9)	1925	0.467	0	0.000

Stations considered which do not cause interference:

WRBD-L (08-)  
WJHG-D.P.A (08)  
W09CF (09+)  
WALBTM (10Z)

Stations which were not considered:

WALATV-D.R (9)

**KESSLER & GEHMAN**

TELECOMMUNICATIONS CONSULTING ENGINEERS  
507 N.W. 60th Street, Suite C  
Gainesville, Florida 32607

**WXGA-DT CHANNEL 9**

**WAYCROSS, GA**

20010125

EXHIBIT 24A

Call Letters	City	State	Dist	Bear
WALA-D.A (09)	Mobile	AL	219.7	279.1
WRBD-L (08-)	Pensacola	FL	164.4	272.4
WJHG-D.P.A (08)	Panama City	FL	12.3	69.7
WACX-L (09Z)	Tallahassee	FL	120.4	87.2
W09CF (09+)	Jacksonville	FL	381.2	90.9
WTVM (09+)	Columbus	GA	225.5	18.4
WALBTM (10Z)	Albany	GA	190.6	56.6
WALATV-D.R (9)	MOBILE	AL	219.7	279.1
WXGA-D.C (9)	Waycross	GA	297.7	71.3

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Totals for WPGX-D.P.A (09)

Calculation Area Population:	408,148	(	29590.4 sq. km )
Not Affected by Terrain Loss:	399,918	(	29247.1 sq. km )
Total NTSC Interference:	14,510	(	1261.8 sq. km )
DTV Only Interference:	66,798	(	2693.4 sq. km )
Total DTV Interference:	74,617	(	3510.4 sq. km )
Interfered Population:	81,308	(	3955.1 sq. km )
Interference Free:	318,610	(	25292.0 sq. km )

Percent Interference: 19.73

Terrain Blocked Population:	8,230	(	343.2 sq. km)
Contour Area Population:	412,011		

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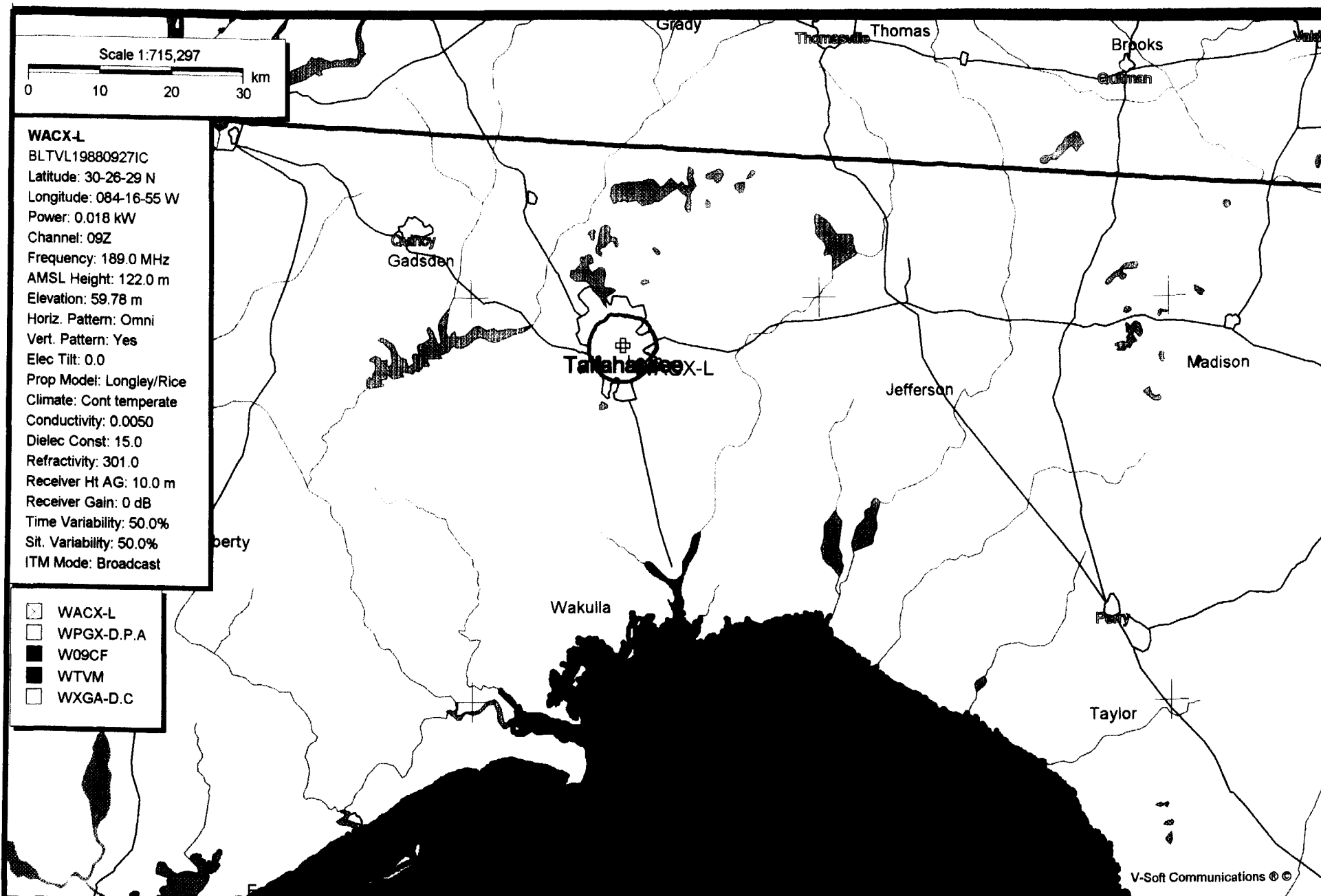
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**WAYCROSS, GA**

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EXHIBIT 25

## V-Soft Communications Population Report

WACX-L (09Z) Tallahassee, FL  
TV Incoming Interference Study  
Signal Resolution: 2 km  
Consider NTSC Taboo: Yes  
KWX error points are considered to be interference free coverage.  
# of radials computed for contours: 72  
Contours calculated using 8 radial HAAT.  
LR Profile Spacing Increment: 1.0 km  
Interference considered within the reference station's 68 dBu FCC countour.  
Using NTSC lptv/translators D/U rules.  
Threshold for reception: 68.0

Study Date: 1/25/2001

Percentages calculated using a baseline population of 76,103.

Stations which cause interference:

Call Letters	H Units	Population	%	Area (sq. km)
WPGX-D.P.A (09)	19259	45063	59.213	42.07

Masking Summary:

Call Letters	Total Interference Population	%	Unique Interference Population	%
WPGX-D.P.A (09)	45063	59.213	45063	59.213

Stations considered which do not cause interference:

W09CF (09+)  
WTVM (09+)

Stations which were not considered:

WXGA-D.C (9)

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Call Letters	City	State	Dist	Bear
WPGX-D.P.A (09)	Panama City	FL	120.4	267.9
W09CF (09+)	Jacksonville	FL	261.2	93.2
WTVM (09+)	Columbus	GA	214.0	347.4
WXGA-D.C (9)	Waycross	GA	184.9	61.7

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**WXGA-DT CHANNEL 9**

**WAYCROSS, GA**

20010125

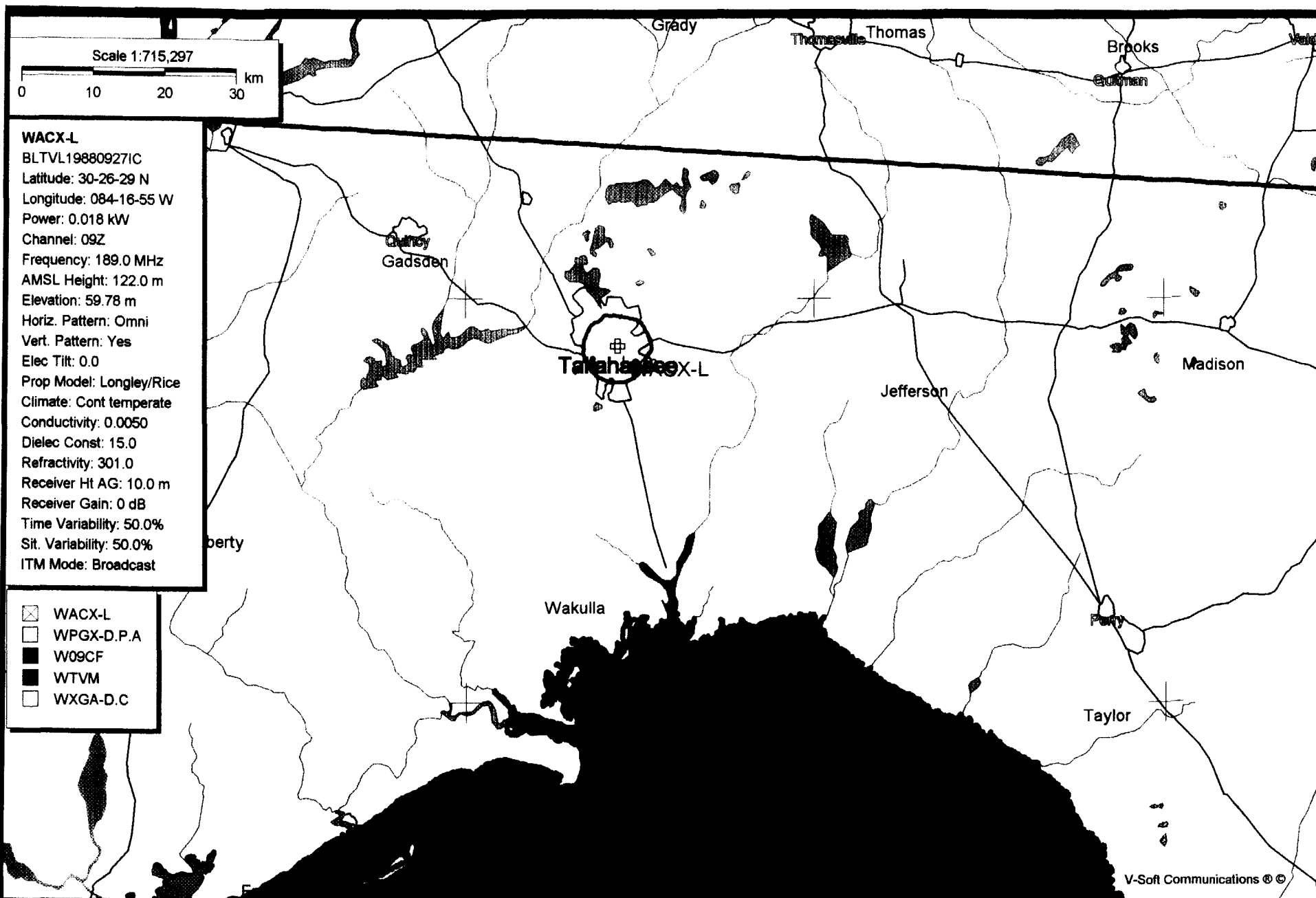
EXHIBIT 25A

Totals for WACX-L (09Z)

Calculation Area Population:	78,737	(	71.5 sq. km )
Not Affected by Terrain Loss:	78,737	(	71.5 sq. km )
Total NTSC Interference:	0	(	0.0 sq. km )
DTV Only Interference:	45,063	(	42.1 sq. km )
Total DTV Interference:	45,063	(	42.1 sq. km )
Interfered Population:	45,063	(	42.1 sq. km )
Interference Free:	33,674	(	29.4 sq. km )

Percent Interference: 59.21

Terrain Blocked Population:	0	(	0.0 sq. km)
Contour Area Population:	76,103		



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**WXGA-DT CHANNEL 9**

**WAYCROSS, GA**

20010125

EXHIBIT 26

## V-Soft Communications Population Report

WACX-L (09Z) Tallahassee, FL  
TV Incoming Interference Study  
Signal Resolution: 2 km  
Consider NTSC Taboo: Yes  
KWX error points are considered to be interference free coverage.  
# of radials computed for contours: 72  
Contours calculated using 8 radial HAAT.  
LR Profile Spacing Increment: 1.0 km  
Interference considered within the reference station's 68 dBu FCC countour.  
Using NTSC lptv/translators D/U rules.  
Threshold for reception: 68.0

Study Date: 1/25/2001

Percentages calculated using a baseline population of 76,103.

Stations which cause interference:

Call Letters	H Units	Population	%	Area (sq. km)
WPGX-D.P.A (09)	19259	45063	59.213	42.07

Masking Summary:

Call Letters	Total Interference Population	%	Unique Interference Population	%
WPGX-D.P.A (09)	45063	59.213	45063	59.213

Stations considered which do not cause interference:

W09CF (09+)  
WTVM (09+)  
WXGA-D.C (9)

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Call Letters	City	State	Dist	Bear
WPGX-D.P.A (09)	Panama City	FL	120.4	267.9
W09CF (09+)	Jacksonville	FL	261.2	93.2
WTVM (09+)	Columbus	GA	214.0	347.4
WXGA-D.C (9)	Waycross	GA	184.9	61.7

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**WXGA-DT CHANNEL 9**

**WAYCROSS, GA**

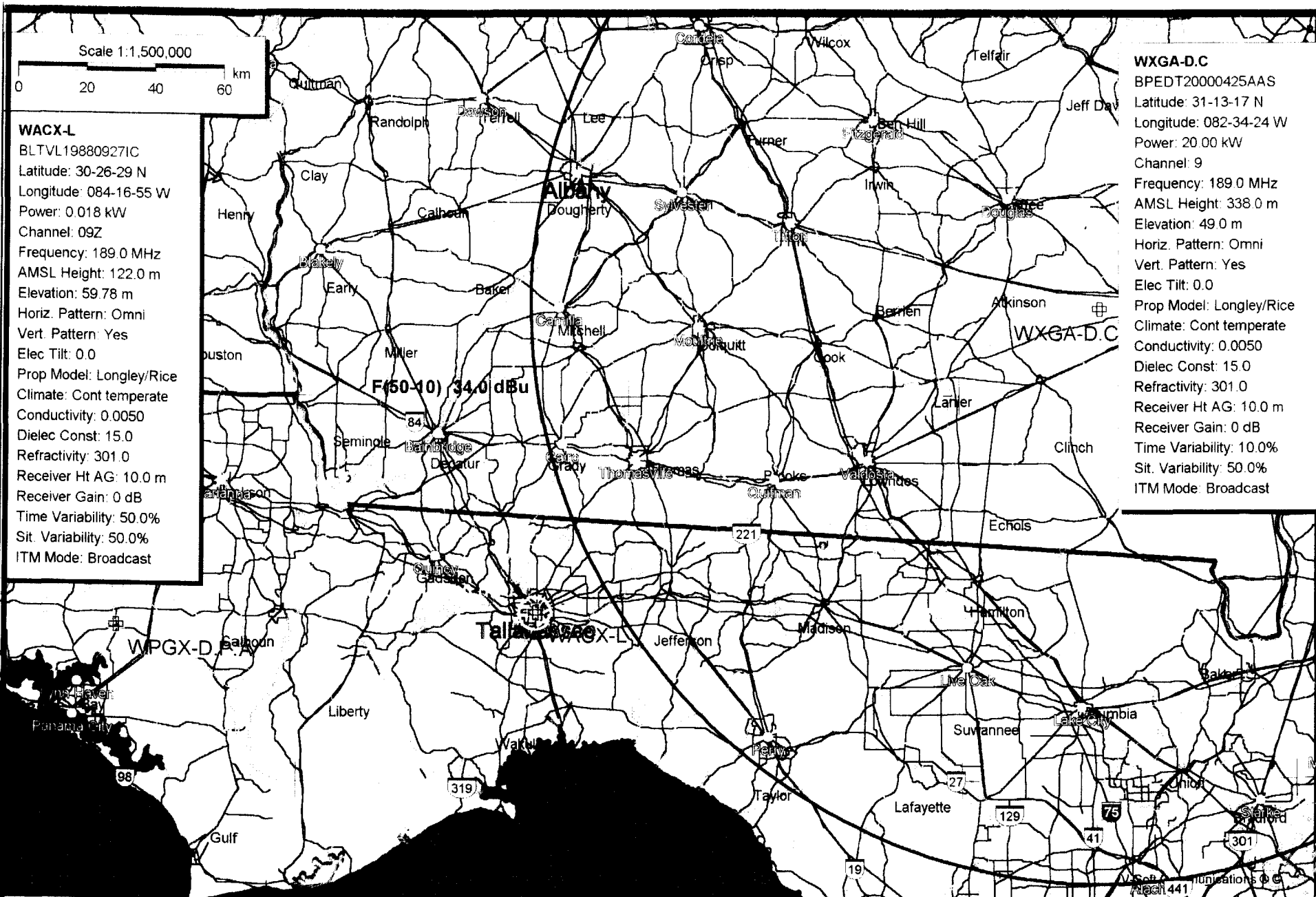
20010125

EXHIBIT 26A

Totals for WACX-L (09Z)

Calculation Area Population:	78,737	(	71.5 sq. km )
Not Affected by Terrain Loss:	78,737	(	71.5 sq. km )
Total NTSC Interference:	0	(	0.0 sq. km )
DTV Only Interference:	45,063	(	42.1 sq. km )
Total DTV Interference:	45,063	(	42.1 sq. km )
Interfered Population:	45,063	(	42.1 sq. km )
Interference Free:	33,674	(	29.4 sq. km )
Percent Interference:	59.21		
Terrain Blocked Population:	0	(	0.0 sq. km)
Contour Area Population:	76,103		





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**WXGA-DT CHANNEL 9**

**WAYCROSS, GA**

**20010209**

**EXHIBIT 27**



DTV PFRM APPLICATION AND VHF  
INTERFERENCE STUDIES FOR THE DIGITAL  
TELEVISION BROADCAST STATION  
WACS-DT TO OPERATE ON  
DTV CHANNEL 8 WITH AN ERP OF  
5 KW AT AN ANTENNA HEIGHT  
RADIATION CENTER OF 331.4 METERS  
ABOVE AVERAGE TERRAIN  
DAWSON, GEORGIA  
*(GEORGIA PUBLIC TELECOMMUNICATIONS COMMISSION)*

KESSLER & GEHMAN ASSOCIATES, INC.  
TELECOMMUNICATIONS CONSULTING ENGINEERS

20010213

*Prepared by William T. Godfrey*

**KG&A**

507 N.W. 60th Street, Suite C  
Gainesville, Florida 32607

**ENGINEERING TECHNICAL STATEMENT PREPARED BY WILLIAM T. GODFREY OF THE FIRM KESSLER AND GEHMAN ASSOCIATES, INC., TELECOMMUNICATIONS CONSULTING ENGINEERS IN CONNECTION WITH THE GEORGIA PUBLIC TELECOMMUNICATIONS COMMISSION'S (GPTC) DTV APPLICATION FOR A CONSTRUCTION PERMIT IN SUPPORT OF THE WACS-DT PETITION FOR RULE MAKING WHICH SEEKS AUTHORIZATION TO AMEND THE DTV TABLE OF ALLOTMENTS IN ORDER TO SUBSTITUTE THE PROPOSED DTV VHF CHANNEL 8 FOR THE ALLOTTED DTV UHF CHANNEL 26 AT THE LICENSED SITE LOCATED IN DAWSON, GEORGIA.**

The firm Kessler and Gehman Associates, Inc., has been retained by the Georgia Public Telecommunications Commission (GPTC), Atlanta, Georgia in order to prepare engineering studies and the engineering portion of a digital television (DTV) application for a construction permit in support of the WACS-DT Petition for Rule Making (PFRM) which respectfully requests and seeks authorization for an amendment of the DTV Table of Allotments by substituting the proposed DTV VHF Channel 8 for the allotted DTV UHF Channel 26 at the licensed site located in Dawson, GA.

**Discussion**

The GPTC is the licensee of nine NTSC broadcast stations and has been assigned a paired DTV channel for each of the nine stations. The enclosed WACS-DT application for the GPTC is just one of six PFRM applications requesting a change from its assigned UHF channel to a desired VHF channel. Kessler and Gehman Associates, Inc. initially conducted a detailed spacing study and determined that two of the nine GPTC stations presently would not be able to convert to VHF without causing above *de minimis*<sup>1</sup> interference to one or more applicable surrounding station(s). Of the nine DTV channels allotted to the GPTC, one station was assigned a VHF channel. Therefore, the GPTC is requesting a "Fleet VHF Conversion" of six of its nine broadcast stations in order to utilize improved signal coverage, heavily reduce support structure upgrade expenses, save on equipment and operational costs and continue digital VHF operation on the proposed channels after the DTV transition has ceased.

Authorization of the "Fleet VHF conversion" will equip the GPTC with seven VHF stations and will serve the public interest significantly with huge savings in tax dollars ranging from the substantial amount of money saved during the DTV purchasing/building phase to the magnitude of electrical savings that low power VHF transmitters offer over high power UHF transmitters. Conversion of the two remaining UHF channels to VHF shall be pursued after the DTV transition when spectrum becomes available so that the GPTC can simulcast efficiently on all nine VHF stations to the entire state of Georgia and beyond.

The objective of the enclosed DTV PFRM application is to amend the DTV Table of Allotments as follows: (1) substitute DTV Channel 8 for assigned DTV Channel 26; (2) change effective radiated power (ERP) from assigned 50.0kW to 5kW using a directional antenna (cardioid) with the main lobe oriented toward N030°E; and (3) change the antenna radiation center (R/C) height above average terrain (HAAT) from the assigned 329.0 meters to 331.4 meters.

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<sup>1</sup> *De minimis* interference is defined as interference to such stations affecting less than two percent of the population they serve. Where a station is receiving interference to between eight and ten percent of the population it would otherwise serve, additional interference is considered *de minimis* if it does not cause interference to the station to exceed the ten-percent threshold.

The GPTC is licensed to operate WACS-TV on UHF, NTSC Channel 25(o) with an ERP of 501kW at an antenna height R/C of 329.0 meters AAT using a nondirectional antenna. The assigned principal community for WACS is Dawson, Georgia and the file number for WACS-TV is BLET-169.

According to the initial allotment plan and reference coordinates (DTV Table of Allotments) set forth in Appendix B of the *Sixth Report and Order* in MM Docket 87-268, FCC 97-115, adopted April 3, 1997, WACS is allotted UHF, DTV Channel 26 at an antenna height R/C of 329.0 meters AAT and an ERP of 50kW in order to replicate its licensed UHF, Channel 25 Grade B Contour.

The GPTC has been granted a construction permit for DTV Channel 26 (file number BPEDT-200000428ACM), which authorizes WACS to operate with an ERP of 100kW at an antenna height radiation of 332 meters AAT using a nondirectional antenna. Specifically, the GPTC requests authorization to substitute WACS-DT Channel 8 in lieu of the WACS-DT Channel 26 construction permit, and to take any other steps necessary to enable WACS to construct and ultimately operate its digital facilities on Channel 8.

### **Transmitter**

It is proposed to top-mount a Dielectric model THV-13A8-R C170 circularly polarized, directional (cardioid oriented at N030E°), VHF, DTV antenna on the existing WACS-TV support structure owned by the GPTC. The tower is registered with the FCC and has a registration number of 1018782. The support structure is located 12.7 miles NNW of Dawson, GA. The antenna height radiation center is 325.5 meters above ground level (AGL). The antenna's highest point will extend to 332.8 meters AGL and the overall height of the structure will extend to 334.1 meters AGL as depicted in Exhibit 3's elevation view of the support structure

### **Interference Studies**

The enclosed interference studies were computed using a Pentium Pro, 300 MHz, 128-megabyte, Pentium II processor. The calculations were performed using V-Soft Communication's Probe II, professional signal propagation software and interference studies program, which complies with the FCC mandated application-processing guidelines for digital television. This software is in accordance with the standards established in the FCC Public Notice #3060-0841 pertaining to DTV studies and DTV application preparation dated August 10, 1998.

Initial spacing studies, which considered DTV allotments (allot), DTV/NTSC licenses (lic), DTV/NTSC construction permits (cp), DTV/NTSC applications (app) and Class A/Class A-eligible low power television (LPTV) stations in the applicable areas surrounding Dawson, GA revealed that VHF Channel 8 was a possible option for the GPTC station. After the spacing studies were completed additional studies were conducted to verify that the proposed station met the principal community coverage requirements of §73.625(a) in the Federal Communications Commission's (FCC) rules. Exhibit 11 depicts the proposed WACS-DT F(50,90) 36dBuV/m noise limited contour and verifies that the proposed station's noise limited contour fully encompasses the assigned principal community of Dawson, GA. After it was determined that the principal community coverage requirement was met, we performed detailed interference studies on all applicable surrounding stations using the terrain dependent Longley-Rice, point-to-point propagation algorithm detailed in the FCC's Office of Engineering and Technology Bulletin Number 69 (OET 69).

The initial interference studies predicted that the proposed WACS-DT may cause interference to the stations listed below (Exhibit 12) and therefore, are the stations we performed detailed interference studies on to verify that all interference remains within the *de minimis* standard:

- WXGA-TV (LIC)    • WJHG-DT (PFRM APP)    • WTVM-TV (LIC)    • WAKA-TV (LIC)
- WGTN-TV (LIC)    • WDCO-DT (APP)    • WDCO-DT (ALLOT)

Exhibit 12 is a pictorial view of all applicable surrounding stations that are predicted to receive interference from WACS-DT using the proposed azimuth pattern with an ERP of 5kW at an antenna R/C HAAT of 331.4 meters. Exhibit 12A is a tabular exhibit which identifies the potential stations that may receive interference from the proposed WACS-DT, including Class A and Class A-eligible LPTV stations. Since this study did not take masking into account, each station was studied in detail in order to determine the exact amount of *unique interference*<sup>2</sup> caused to each station from the proposed WACS-DT.

*NOTE: Starting from Exhibit 12, each pictorial exhibit will also be followed by a tabulation exhibit. For example, Exhibit 15 will be a pictorial exhibit and Exhibit 15A will be a tabulation exhibit.*

Exhibits 13 and 14 are studies showing interference from all stations to the WXGA-TV GPTC station without and with WACS-DT respectively. Exhibit 13 shows that without WACS-DT, populations of 1,111 people are receiving DTV only interference and the interference free population is 338,831. Exhibit 14 shows that with WACS-DT, populations of 34,810 people are receiving DTV only interference and the interference free population is 305,132. Therefore, the proposed WACS-DT causes  $[338,831 \text{ (IX free without WACS-DT)} - 305,132 \text{ (IX free with WACS-DT)} = 33,699]$  interference to a total of 33,699 people. Exhibits 13 and 14 calculated the WXGA-TV baseline population to be 384,154. Therefore, the total amount of unique interference caused by the proposed WACS-DT is  $[33,699/384,154]$  8.77%, which is not less than 2.0% and therefore does not comply with the 2% *de minimis* threshold requirement.

Exhibit A depicts the WXGA-TV interference free area that currently exists. Exhibit B depicts the WXGA-TV interference free area that currently exists with the Longley-Rice coverage area of the surrounding GPTC stations (WVAN-TV, WDCO-TV & WABW-TV) being considered. As you can see, the surrounding GPTC station's combined Longley-Rice coverage actually fills in a significant portion of the areas receiving interference within the WXGA-TV Grade B contour.

Exhibit C depicts the interference free area of WXGA-TV based on DTV Table of Allotment parameters and NTSC licenses. Exhibit D depicts the interference free area of WXGA-TV based on DTV Table of Allotment parameters and NTSC licenses with the Longley-Rice coverage area of the three surrounding GPTC stations. As you can see, the surrounding GPTC station's combined Longley-Rice coverage fills in a significant portion of the areas receiving interference within the WXGA-TV Grade B contour.

Exhibit E depicts the interference free area of WXGA-TV based on the enclosed WACS-DT Channel 8 PFRM parameters and all applicable surrounding station's existing licenses, construction permits and/or allotments. Exhibit E, when compared to Exhibits A and C, shows that the proposed PFRM application does cause some additional interference within the WXGA-TV Grade B contour.

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<sup>2</sup> Unique interference is defined as the predicted interference a DTV station would cause beyond the amount of interference "built into" the DTV allotment table.

Exhibit F depicts the interference free area of WXGA-TV based on the enclosed WACS-DT Channel 8 PFRM parameters and all applicable surrounding station's existing licenses, construction permits and/or allotments with the Longley-rice coverage area of the three surrounding GPTC stations. As you can see, the surrounding GPTC station's combined Longley-Rice coverage fills in all of the areas within the WXGA-TV Grade B contour that are predicted to receive interference from the proposed WACS-DT Channel 8 station. The surrounding GPTC station's not only place coverage over the areas predicted to receive interference from the proposed WACS-DT Channel 8 but they also place complete coverage over the northeastern, northern and western areas within the WXGA-TV Grade B contour where the licensed WXGA-TV is currently unable to serve due to interference.

Therefore, the predicted percentage of additional population within the WXGA-TV Grade B contour that would not be able to receive programming from the GPTC that is currently receiving programming from the GPTC would be zero (0.0) percent. Since the GPTC is the licensee of the station that is predicted to receive 8.77% interference from the proposed WACS-DT Channel 8 station (WXGA-TV), the GPTC has signed and enclosed a letter with this PFRM stating that they are willing to accept the interference from the proposed WACS-DT station and therefore, request a waiver of the *de minimis* rules. The waiver is based on the following facts: 1) the public's best interests shall be served; 2) an interference acceptance letter has been signed and enclosed; and 3) all population within the WXGA-TV Grade B contour that currently receives GPTC programming without the proposed WACS-DT Channel 8 will still be able to receive the GPTC programming from WXGA-TV or one of the three aforementioned surrounding GPTC stations while the proposed WACS-DT Channel 8 is in full operation (0.0% interference).

Exhibits 15 and 16 are studies showing interference from all stations to the WAKA-TV (LIC) station without and with WACS-DT respectively. Exhibit 15 shows that without WACS-DT, populations of 23,565 people are receiving DTV only interference and the interference free population is 599,121. Exhibit 16 shows that with WACS-DT, populations of 45,383 people are receiving DTV only interference and the interference free population is 590,338. Therefore, WACS-DT causes  $[599,121 \text{ (IX free without WACS-DT)} - 590,338 \text{ (IX free with WACS-DT)} = 8,783]$  interference to a total of 8,783 people. Exhibits 15 and 16 calculated the WAKA-TV baseline population to be 680,358. Therefore, the total amount of unique interference caused by WACS-DT is  $[8,783/680,358] 1.29\% \leq 2.0\%$  and thus, all requirements under the definition of *de minimis* have been met. Exhibit 16 concludes that the total interference caused to WAKA-TV from all stations including WACS-DT is  $[32,348/680,358] 4.75\% \leq 10\%$  and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

Exhibits 17 and 18 are studies showing interference from all stations to the WGTW-TV (LIC) GPTC station without and with WACS-DT respectively. Exhibit 17 shows that without WACS-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is 3,267,110. Exhibit 18 shows that with WACS-DT, populations of 3,083 people are receiving DTV only interference and the interference free population is 3,264,027. Therefore, WACS-DT causes  $[3,267,110 \text{ (IX free without WACS-DT)} - 3,264,027 \text{ (IX free with WACS-DT)} = 3,083]$  interference to a total of 3,083 people. Exhibits 17 and 18 calculated the WGTW-TV baseline population to be 3,397,310. Therefore, the total amount of unique interference caused by WACS-DT is  $[3,083/3,397,310] 0.091\% \leq 2.0\%$  and thus, all requirements under the definition of *de minimis* have been met. Exhibit 18 concludes that the total interference caused to WGTW-TV from all stations including WACS-DT is  $[3,083/3,397,310] 0.091\% \leq 10\%$  and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

Exhibits 19 and 20 are studies showing interference from all stations to the WDCO-DT (ALLOT) GPTC station without and with WACS-DT respectively. Exhibit 19 shows that without WACS-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is 540,246. Exhibit 20 shows that with WACS-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is still 540,246. Therefore, WACS-DT causes  $[540,246 \text{ (IX free without WACS-DT)} - 540,246 \text{ (IX free with WACS-DT)} = 0.0]$  interference to a total of zero (0.0) people. Exhibits 19 and 20 calculated the WGTV-TV baseline population to be 551,687. Therefore, the total amount of unique interference caused by WACS-DT is  $[0.0/551,687]$   $0.0\% \leq 2.0\%$  and thus, all requirements under the definition of *de minimis* have been met. Exhibit 20 concludes that the total interference caused to WGTV-TV from all stations including WACS-DT is  $[0.0/551,687]$   $0.0\% \leq 10\%$  and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

Exhibits 21 and 22 are studies showing interference from all stations to the WDCO-DT (APP) GPTC station without and with WACS-DT respectively. Exhibit 21 shows that without WACS-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is 702,285. Exhibit 22 shows that with WACS-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is still 702,285. Therefore, WACS-DT causes  $[702,285 \text{ (IX free without WACS-DT)} - 702,285 \text{ (IX free with WACS-DT)} = 0.0]$  interference to a total of zero (0.0) people. Exhibits 21 and 22 calculated the WGTV-TV baseline population to be 719,331. Therefore, the total amount of unique interference caused by WACS-DT is  $[0.0/719,331]$   $0.0\% \leq 2.0\%$  and thus, all requirements under the definition of *de minimis* have been met. Exhibit 22 concludes that the total interference caused to WGTV-TV from all stations including WACS-DT is  $[0.0/719,331]$   $0.0\% \leq 10\%$  and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

Exhibits 23 and 24 are studies showing interference from all stations to the WJHG-DT PFRM application without and with WACS-DT respectively. Exhibit 23 shows that without WACS-DT, populations of 452 people are receiving DTV only interference and the interference free population is 334,682. Exhibit 24 shows that with WACS-DT, populations of 452 people are receiving DTV only interference and the interference free population is still 334,682. Therefore, WACS-DT causes  $[334,682 \text{ (IX free without WACS-DT)} - 334,682 \text{ (IX free with WACS-DT)} = 0.0]$  interference to a total of zero (0.0) people. Exhibits 24 and 25 calculated the WJHG-DT PFRM application baseline population to be 349,509. Therefore, the total amount of unique interference caused by WACS-DT is  $[0.0/349,509]$   $0.0\% \leq 2.0\%$  and thus, all requirements under the definition of *de minimis* have been met. Exhibit 25 concludes that the total interference caused to the WJHG-DT PFRM application from all stations including WACS-DT is  $[0.0/349,509]$   $0.0\% \leq 10\%$  and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

Exhibits 25 and 26 are studies showing interference from all stations to the WTVM-TV (LIC) station without and with WACS-DT respectively. Exhibit 25 shows that without WACS-DT, populations of 26,441 people are receiving DTV only interference and the interference free population is 700,661. Exhibit 26 shows that with WACS-DT, populations of 26,441 people are receiving DTV only interference and the interference free population is still 700,661. Therefore, WACS-DT causes  $[700,661 \text{ (IX free without WACS-DT)} - 700,661 \text{ (IX free with WACS-DT)} = 0.0]$  interference to a total of zero (0.0) people. Exhibits 25 and 26 calculated the WTVM-TV baseline population to be 1,004,608. Therefore, the total amount of unique interference caused by WACS-DT is  $[0.0/1,004,608]$   $0.0\% \leq 2.0\%$  and thus, all requirements under the definition of *de minimis* have been met. Exhibit 26 concludes that the total



interference caused to WTVM-TV from all stations including WACS-DT is  $[26,441/1,004,608]$   $2.63\% \leq 10\%$  and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

## **Exhibits**

Exhibits 1 and 2 represent WACS-DT's administration data, antenna and antenna structure specifications as per §V-D item 9 in the DTV Broadcasting Engineering Data portion of the application regarding directional antennas and beam tilt.

Exhibit 3 depicts the profile view of the proposed antenna on the antenna structure with all the appropriate elevations as per §V-D item 8 in the DTV Broadcasting Engineering Data portion of the application regarding supporting structures and elevations.

Exhibits 4 and 5 display the azimuth pattern and the azimuth pattern tabulation respectively.

Exhibits 6 and 7 display the elevation pattern and the elevation pattern tabulation respectively.

Exhibits 8 and 9 display the ERP/dBk pattern and tabulation respectively.

Exhibit 10 depicts the site location of the proposed WACS-DT site on a 7.5-Minute (Series) Topographic Map as per §V-D item 17 in the DTV Broadcasting Engineering Data portion of the application regarding topographic maps.

Exhibit 11 depicts the proposed WACS-DT coverage contour, boundaries of the principal community to be served, and the proposed transmitting location with radials every  $45^\circ$  as per §V-D item 18 in the DTV Broadcasting Engineering Data portion of the application regarding Sectional Aeronautical Charts.

Exhibits 12 through 26 are detailed interference studies and demographic results of WACS-DT to all applicable stations.

## **Environmental Impact**

The proposed construction will have no significant environmental impact as defined in §1.1307 of the FCC Rules. The DTV transmitter, 3 inch (50-ohm) transmission line and antenna system will produce an ERP of 5kW. Assuming that the maximum lobe of radiation is oriented at the base of the tower, it will produce a power density six feet above the ground of  $0.002 \text{ mW/cm}^2$ . This is only 0.18% of the maximum permissible exposure (MPE) authorized by the American National Standards Institute (ANSI). Since the proposed operation of WACS-DT Channel 8 will not exceed 5.0% of the MPE limit for population/uncontrolled at any point on the ground, WACS-DT is not considered to be a "significant contributor" to the RF exposure environment pursuant to OET Bulletin 65, Edition 97-01. Therefore, contributions of exposure from other sources were not accounted for in this analysis. It is safe to conclude that the emissions will be insignificant and well within the maximum allowable requirements.

If other antennas are placed on the tower in the future, the applicant will cooperate with those users by reducing or completely terminating the power to the antenna when maintenance workers are in danger from the electromagnetic radiation emanating from the antenna. The tower will be enclosed within a fence with warning signs posted at the locked gate.

## **Certification**

The applicant accepts full responsibility for the elimination of any objectionable interference including that caused by intermodulation to facilities in existence or authorized prior to the grant of this application.

This technical statement was prepared by William T. Godfrey, Telecommunications Consultant with Kessler and Gehman Associates, Inc. having offices in Gainesville, Florida and has been working in the field of radio and television broadcast consulting since 1998. He graduated from the University of North Florida with a Bachelor of Arts degree in Criminal Justice and a minor in Mathematics and received a Commission in the Aviation Branch of the United States Army in 1993. As a Professional in the field of Telecommunications and as a Captain in the United States Army, he states under penalty of perjury that the information contained in this report is true and correct to the best of his knowledge and belief.



KESSLER AND GEHMAN ASSOCIATES, INC.

A handwritten signature in black ink, which appears to read 'William T. Godfrey', is written over a horizontal line. The signature is fluid and cursive.

WILLIAM T. GODFREY  
Telecommunications Consultant

19 March, 2001

**WACS-DT  
DAWSON, GA**

**ENGINEERING SPECIFICATIONS**

**A. Transmitter Site:**

Geographic coordinates determined by licensed surveyor:

North Latitude .....	31° 56' 15"
West Longitude .....	84° 33' 15"

Transmitter Site Address:     **Route, 1 Box 75 A Parrot, GA 31777 (12.7 Miles  
NNW of Dawson, GA)**

**B. Main Studio Site Address:   260    14<sup>th</sup> Street N.W., Atlanta, GA 30318.**

**C. Proposed Facility:**

DTV Channel	Number .....	8
	Frequency .....	180 -186 MHz

**D. Antenna Height:**

Height of Site Above Mean Sea Level (AMSL) .....	138.0 M
Overall Height of Structure Above Ground .....	334.1 M
(including all appurtenances)	
Overall Height of Structure Above Mean Sea Level .....	472.1 M
(including all appurtenances)	
Height of Site Above Average Terrain .....	7.9 M
Antenna Height Radiation Center (R/C) Above Ground .....	325.5 M
Antenna Height R/C Above Mean Sea Level .....	463.5 M
Average of All Non-Odd Radials .....	132.1 M
Antenna Height R/C Above Average Terrain .....	331.4 M

**E. System Parameters – Horizontal Polarization:**

Transmitter Power Required .....	0.38 kW
Maximum Power Input to Antenna .....	0.23 kW
Total System Loss .....	2.30 dB
Transmission Line Efficiency .....	58.9%
Maximum Antenna Gain in Beam Maximum .....	13.44 dB
Maximum Antenna Gain in Horizontal Plane .....	13.10 dB
Maximum Effective Radiated Power .....	6.99 dBk
In Beam Maximum .....	5.0 kW
Maximum Effective Radiated Power .....	6.65 dBk
In Horizontal Plane .....	4.62 kW

**WACS-DT  
DAWSON, GA**

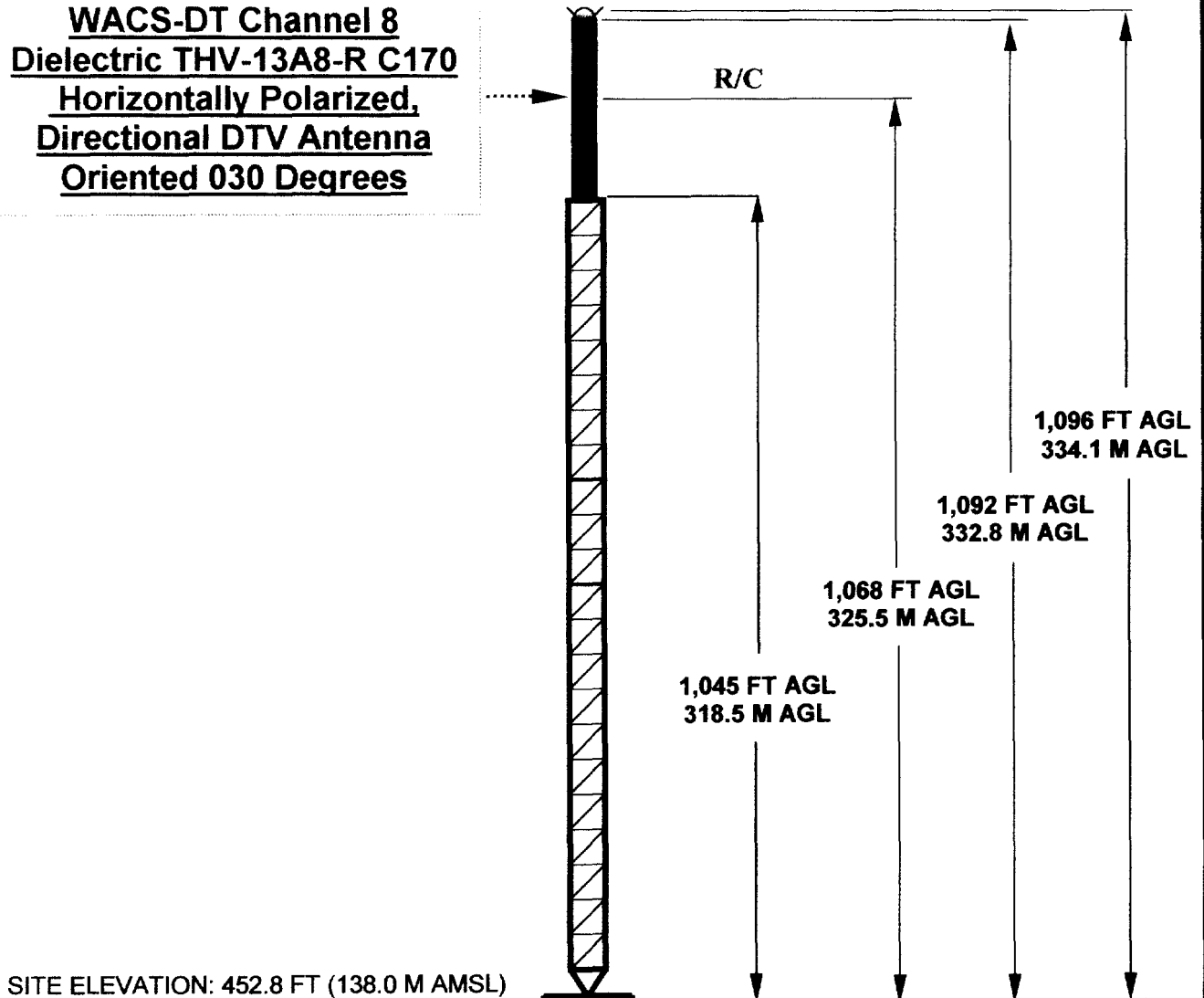
**DATA FOR PROPOSED DTV  
DIRECTIONAL TRANSMITTING ANTENNA**

- A. **Antenna:** Dielectric THV-13A8-R C170, Circularly Polarized, Directional (Cardioid – N030°E), Top-mount Antenna.
- B. **Electrical Beam Tilt:** 0.75°
- C. **Mechanical Beam Tilt:** 0.0°
- D. 

<b><u>Maximum Power Gain</u></b>	<b><u>Horizontal Polarization</u></b>
Maximum:	22.1 (13.44 dB)
Horizontal:	20.4 (13.10 dB)
- E. **Length:** 47.0 feet (14.3 meters - modified) not including appurtenances.
- F. **Average Power DTV:** 0.38kW
- G. **Null Fill:** 20.7%
- H. **Transmission Line:** 3" 50-ohm Heliax.
- I. **Transmission Line Loss:** 0.203dB/100-feet
- J. **Total Transmission Line:** 1,135 feet
- K. **Transmission Line Attenuation:** 2.30 dB

## ANTENNA STRUCTURE ELEVATION VIEW

**WACS-DT Channel 8**  
**Dielectric THV-13A8-R C170**  
**Horizontally Polarized,**  
**Directional DTV Antenna**  
**Oriented 030 Degrees**



**OVERALL HEIGHT AGL:** 334.1 M  
**OVERALL HEIGHT AMSL:** 472.1 M  
**RADIATION CENTER AGL:** 325.5 M  
**RADIATION CENTER AMSL:** 463.5 M  
**RADIATION CENTER HAAT:** 331.4 M  
**AVG OF ALL NON-ODD RADIALS:** 132.1 M

**COORDINATES (NAD 27):**

**N. LATITUDE** 31° 56' 15"  
**W. LONGITUDE** 84° 33' 15"

**TOWER REGISTRATION NUMBER:**

1018782

**NOTE: NOT TO SCALE**

**KESSLER & GEHMAN**

TELECOMMUNICATIONS CONSULTING ENGINEERS

507 N.W. 60th Street, Suite C  
Gainesville, Florida 32607

**WACS-DT CHANNEL 8**

**DAWSON, GEORGIA**

20010212

**EXHIBIT 3**

# Dielectric

Exhibit No.  
**EXHIBIT 4**

Date	12 Feb 2001	Channel	8
Call Letters	WACS-DT		
Location	DAWSON		
Customer	GPTC		
Antenna Type	THV-13A8-R C170		

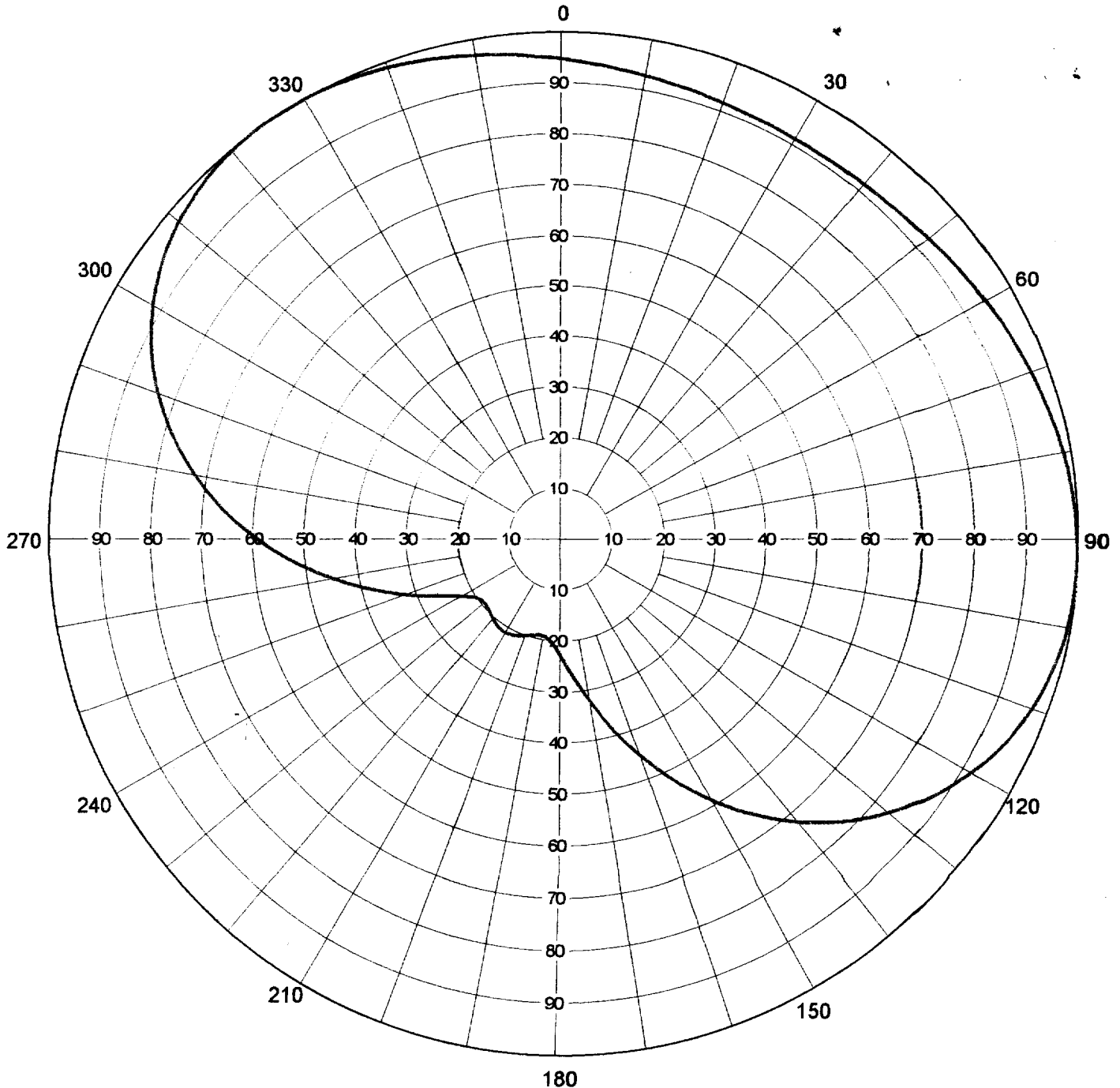
## AZIMUTH PATTERN

RMS Gain at Main Lobe  
Calculated / Measured

1.70 (2.30 dB)  
Calculated

Frequency  
Drawing #

183 MHz  
THV-C170



Remarks:

EXHIBIT 4



Date **12 Feb 2001**  
Call Letters **WACS-DT** Channel **8**  
Location **DAWSON**  
Customer **GPTC**  
Antenna Type **THV-13A8-R C170**

### TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing # **THV-C170**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.946	45	0.921	90	0.999	135	0.782	180	0.226	225	0.196	270	0.591	315	0.987
1	0.944	46	0.923	91	0.999	136	0.771	181	0.220	226	0.195	271	0.605	316	0.989
2	0.942	47	0.924	92	1.000	137	0.759	182	0.214	227	0.194	272	0.618	317	0.991
3	0.940	48	0.925	93	1.000	138	0.747	183	0.210	228	0.193	273	0.632	318	0.993
4	0.938	49	0.927	94	1.000	139	0.735	184	0.205	229	0.193	274	0.646	319	0.995
5	0.936	50	0.928	95	1.000	140	0.723	185	0.202	230	0.193	275	0.659	320	0.996
6	0.935	51	0.930	96	0.999	141	0.710	186	0.199	231	0.194	276	0.672	321	0.997
7	0.933	52	0.931	97	0.999	142	0.698	187	0.197	232	0.195	277	0.685	322	0.998
8	0.931	53	0.933	98	0.998	143	0.685	188	0.195	233	0.197	278	0.698	323	0.999
9	0.930	54	0.935	99	0.997	144	0.672	189	0.194	234	0.199	279	0.710	324	1.000
10	0.928	55	0.936	100	0.996	145	0.659	190	0.193	235	0.202	280	0.723	325	1.000
11	0.927	56	0.938	101	0.995	146	0.646	191	0.193	236	0.205	281	0.735	326	1.000
12	0.925	57	0.940	102	0.993	147	0.632	192	0.193	237	0.210	282	0.747	327	1.000
13	0.924	58	0.942	103	0.991	148	0.618	193	0.194	238	0.214	283	0.759	328	1.000
14	0.923	59	0.944	104	0.989	149	0.605	194	0.195	239	0.220	284	0.771	329	0.999
15	0.921	60	0.946	105	0.987	150	0.591	195	0.196	240	0.226	285	0.782	330	0.999
16	0.920	61	0.948	106	0.984	151	0.577	196	0.197	241	0.233	286	0.793	331	0.998
17	0.919	62	0.950	107	0.981	152	0.563	197	0.199	242	0.240	287	0.804	332	0.997
18	0.918	63	0.952	108	0.978	153	0.549	198	0.200	243	0.249	288	0.814	333	0.996
19	0.917	64	0.954	109	0.974	154	0.535	199	0.202	244	0.257	289	0.824	334	0.995
20	0.917	65	0.956	110	0.971	155	0.521	200	0.203	245	0.267	290	0.834	335	0.994
21	0.916	66	0.958	111	0.967	156	0.507	201	0.205	246	0.276	291	0.844	336	0.993
22	0.915	67	0.960	112	0.963	157	0.492	202	0.206	247	0.287	292	0.853	337	0.991
23	0.915	68	0.963	113	0.958	158	0.478	203	0.207	248	0.297	293	0.862	338	0.990
24	0.914	69	0.965	114	0.953	159	0.464	204	0.209	249	0.309	294	0.871	339	0.988
25	0.914	70	0.967	115	0.948	160	0.450	205	0.210	250	0.320	295	0.880	340	0.987
26	0.913	71	0.969	116	0.943	161	0.437	206	0.211	251	0.332	296	0.888	341	0.985
27	0.913	72	0.971	117	0.937	162	0.423	207	0.211	252	0.344	297	0.896	342	0.983
28	0.913	73	0.973	118	0.931	163	0.409	208	0.212	253	0.357	298	0.904	343	0.981
29	0.913	74	0.975	119	0.924	164	0.396	209	0.212	254	0.369	299	0.911	344	0.979
30	0.912	75	0.977	120	0.918	165	0.383	210	0.212	255	0.383	300	0.918	345	0.977
31	0.913	76	0.979	121	0.911	166	0.369	211	0.212	256	0.396	301	0.924	346	0.975
32	0.913	77	0.981	122	0.904	167	0.357	212	0.212	257	0.409	302	0.931	347	0.973
33	0.913	78	0.983	123	0.896	168	0.344	213	0.211	258	0.423	303	0.937	348	0.971
34	0.913	79	0.985	124	0.888	169	0.332	214	0.211	259	0.437	304	0.943	349	0.969
35	0.914	80	0.987	125	0.880	170	0.320	215	0.210	260	0.450	305	0.948	350	0.967
36	0.914	81	0.988	126	0.871	171	0.309	216	0.209	261	0.464	306	0.953	351	0.965
37	0.915	82	0.990	127	0.862	172	0.297	217	0.207	262	0.478	307	0.958	352	0.963
38	0.915	83	0.991	128	0.853	173	0.287	218	0.206	263	0.492	308	0.963	353	0.960
39	0.916	84	0.993	129	0.844	174	0.276	219	0.205	264	0.507	309	0.967	354	0.958
40	0.917	85	0.994	130	0.834	175	0.267	220	0.203	265	0.521	310	0.971	355	0.956
41	0.917	86	0.995	131	0.824	176	0.257	221	0.202	266	0.535	311	0.974	356	0.954
42	0.918	87	0.996	132	0.814	177	0.249	222	0.200	267	0.549	312	0.978	357	0.952
43	0.919	88	0.997	133	0.804	178	0.240	223	0.199	268	0.563	313	0.981	358	0.950
44	0.920	89	0.998	134	0.793	179	0.233	224	0.197	269	0.577	314	0.984	359	0.948

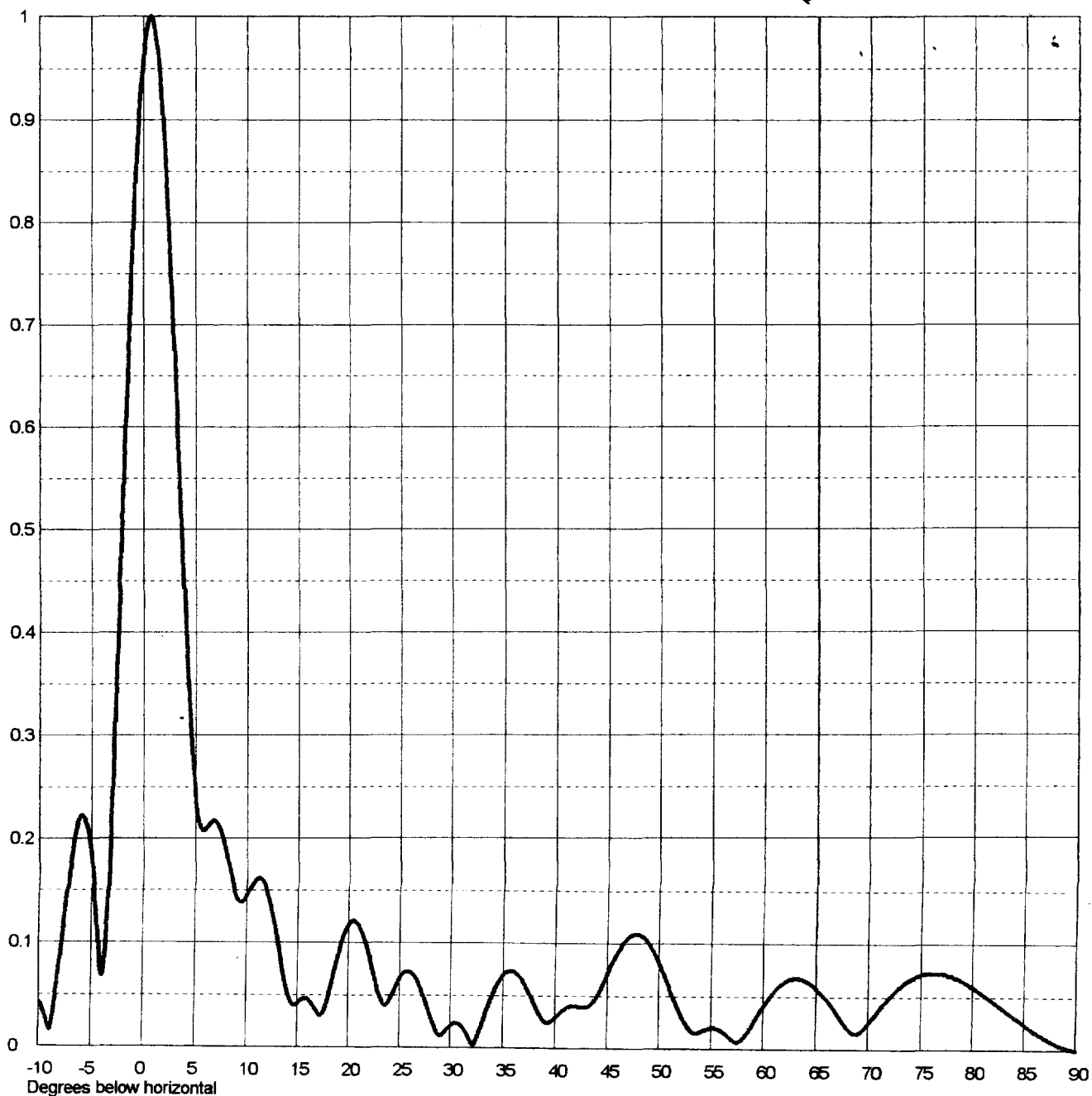
Remarks:

EXHIBIT 5

Date	13 Feb 2001	
Call Letters	WACS-DT	Channel 8
Location	DAWSON	
Customer	GPTC	
Antenna Type	THV-13A8-R C170	

## ELEVATION PATTERN

RMS Gain at Main Lobe	13.0 (11.14 dB)	Beam Tilt	0.70 Degrees
RMS Gain at Horizontal	12.0 (10.79 dB)	Frequency	183.00 MHz
Calculated / Measured	Calculated	Drawing #	13V130070-90



Remarks:

EXHIBIT 6





Date **13 Feb 2001**  
Call Letters **WACS-DT** Channel **8**  
Location **DAWSON**  
Customer **GPTC**  
Antenna Type **THV-13A8-R C170**

### TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **13V130070-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.043	2.4	0.808	10.6	0.156	30.5	0.023	51.0	0.059	71.5	0.044
-9.5	0.031	2.6	0.764	10.8	0.159	31.0	0.021	51.5	0.046	72.0	0.050
-9.0	0.016	2.8	0.718	11.0	0.160	31.5	0.015	52.0	0.035	72.5	0.055
-8.5	0.041	3.0	0.670	11.5	0.159	32.0	0.005	52.5	0.025	73.0	0.059
-8.0	0.084	3.2	0.621	12.0	0.148	32.5	0.008	53.0	0.018	73.5	0.063
-7.5	0.131	3.4	0.571	12.5	0.129	33.0	0.022	53.5	0.015	74.0	0.066
-7.0	0.174	3.6	0.521	13.0	0.104	33.5	0.037	54.0	0.016	74.5	0.069
-6.5	0.206	3.8	0.472	13.5	0.077	34.0	0.050	54.5	0.018	75.0	0.071
-6.0	0.222	4.0	0.424	14.0	0.054	34.5	0.061	55.0	0.020	75.5	0.072
-5.5	0.215	4.2	0.380	14.5	0.041	35.0	0.069	55.5	0.019	76.0	0.072
-5.0	0.184	4.4	0.338	15.0	0.041	35.5	0.073	56.0	0.017	76.5	0.072
-4.5	0.129	4.6	0.302	15.5	0.045	36.0	0.073	56.5	0.014	77.0	0.072
-4.0	0.070	4.8	0.270	16.0	0.046	36.5	0.069	57.0	0.009	77.5	0.071
-3.5	0.115	5.0	0.245	16.5	0.040	37.0	0.062	57.5	0.006	78.0	0.069
-3.0	0.236	5.2	0.227	17.0	0.033	37.5	0.053	58.0	0.010	78.5	0.067
-2.8	0.291	5.4	0.215	17.5	0.032	38.0	0.042	58.5	0.016	79.0	0.065
-2.6	0.348	5.6	0.209	18.0	0.046	38.5	0.032	59.0	0.024	79.5	0.062
-2.4	0.406	5.8	0.207	18.5	0.066	39.0	0.025	59.5	0.033	80.0	0.059
-2.2	0.465	6.0	0.208	19.0	0.088	39.5	0.025	60.0	0.040	80.5	0.056
-2.0	0.523	6.2	0.211	19.5	0.105	40.0	0.029	60.5	0.047	81.0	0.053
-1.8	0.580	6.4	0.214	20.0	0.116	40.5	0.034	61.0	0.054	81.5	0.049
-1.6	0.636	6.6	0.216	20.5	0.121	41.0	0.038	61.5	0.059	82.0	0.046
-1.4	0.690	6.8	0.217	21.0	0.117	41.5	0.040	62.0	0.063	82.5	0.042
-1.2	0.741	7.0	0.216	21.5	0.106	42.0	0.040	62.5	0.066	83.0	0.038
-1.0	0.789	7.2	0.213	22.0	0.090	42.5	0.039	63.0	0.067	83.5	0.035
-0.8	0.833	7.4	0.208	22.5	0.070	43.0	0.039	63.5	0.067	84.0	0.031
-0.6	0.872	7.6	0.202	23.0	0.051	43.5	0.042	64.0	0.065	84.5	0.028
-0.4	0.907	7.8	0.194	23.5	0.041	44.0	0.049	64.5	0.062	85.0	0.024
-0.2	0.937	8.0	0.185	24.0	0.044	44.5	0.058	65.0	0.058	85.5	0.021
0.0	0.961	8.2	0.176	24.5	0.054	45.0	0.070	65.5	0.053	86.0	0.017
0.2	0.980	8.4	0.166	25.0	0.065	45.5	0.081	66.0	0.047	86.5	0.014
0.4	0.992	8.6	0.157	25.5	0.071	46.0	0.091	66.5	0.040	87.0	0.011
0.6	0.999	8.8	0.150	26.0	0.072	46.5	0.099	67.0	0.033	87.5	0.009
0.8	1.000	9.0	0.144	26.5	0.067	47.0	0.105	67.5	0.026	88.0	0.006
1.0	0.994	9.2	0.140	27.0	0.058	47.5	0.108	68.0	0.020	88.5	0.004
1.2	0.983	9.4	0.138	27.5	0.046	48.0	0.108	68.5	0.016	89.0	0.002
1.4	0.966	9.6	0.138	28.0	0.031	48.5	0.106	69.0	0.015	89.5	0.001
1.6	0.944	9.8	0.140	28.5	0.018	49.0	0.100	69.5	0.019	90.0	0.000
1.8	0.917	10.0	0.144	29.0	0.012	49.5	0.092	70.0	0.025		
2.0	0.884	10.2	0.148	29.5	0.016	50.0	0.082	70.5	0.031		
2.2	0.848	10.4	0.152	30.0	0.021	50.5	0.071	71.0	0.038		

Remarks:

EXHIBIT 7